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ABSTRACT

The purpose of the study described here was to determine the extent to which student teachers' performance, as assessed by their university supervisors, could be predicted from the following sets of measurements: (1) high school and college academic performance indexes; (2) self-reported attitudes, anxieties, and concerns about teaching; and (3) Myers-Briggs Type Indicator and Rotter's locus of control scores. Subjects were teacher education students (N=87) who had completed their student teaching (60 percent were elementary and 40 percent were secondary education majors, and 80 percent were female). University supervisors provided a numerical evaluation of student teaching performance. Results suggest that the most significant predictors of prospective teachers' success are university grade point averages; self-ratings of future success; and Myers-Briggs classification preferences for intuition in contrast to sensing and for feeling rather than thinking. Additionally it appears that prospective teachers who are more anxious about teaching, who feel they have less control over their environment (external locus of control), and have a perceptive rather than judging attitude on the Myers-Briggs inventory are more likely to be rated lower than their fellow prospective teachers by university supervisors. Appendixes include a scale for rating student teaching performance and a report form for Myers-Briggs Type Indicator. (LL)

The Identification of Academic, Personal, and Affective Predictors of Student Teaching Performance

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Running Head: PREDICTING PERFORMANCE

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The nature of the impact of student teaching upon neophyte teachers continues to receive considerable attention in the professional literature. Perceptions of this impact vary from it being insignificant relative to the overall socialization of teachers (Lortie, 1975), it being a coercive conformity to school bureaucracy (Hoy & Rees, 1977), to it being prospective teachers' most practical and useful orientation to the real world of teaching (Berliner, 1985).

Relatedly, the findings from the studies of the influence of student teaching upon prospective teachers have been described as being ambiguous and contradictory (Hersh, Hull, & Leighton, 1982; Zeichner, 1980). More recent research studies, however, suggest that the student teaching experience does have an effect upon neophyte teachers but that a number of factors influence the consequences of the experience. Tabachnick and Zeichner (1984) concluded that both the characteristics of the prospective teacher and the nature of the school placement influence the outcomes of the student teaching experience.

Additionally, Pigge and Marso (1987) reported that planned grade level of instruction, selected major, and gender were related to changes in prospective teachers during teacher training; Byler and Byler (1984) found a relationship between change in morale during student teaching and extent of early field experience during teacher training; Zeichner and Grant (1981) found that whether or not prospective teachers' change to a more custodial pupil orientation during student teaching may be related to the custodial orientation of their cooperating teachers; Koehler (1985) concluded from the research literature that the extent of congruence between instructional strategies employed by student teachers and common practices occurring in their assigned classrooms has a major influence upon the ultimate instructional practices of neophyte teachers; and Marso and Pigge (1989-90) reported that prospective teachers became less concerned and less anxious about teaching as a result of student teaching.

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Researchers who have investigated criteria or factors which might be used to predict performance in student teaching have reported that problems arise from accuracy of measurement and restricted sample variance. Findings from two relatively recent studies illustrate these difficulties in predicting and measuring student teaching performance. Dobry, Murphy, and Schmidt (1985) found that ratings of student teaching performance did not correlate with either the National Teacher Examination professional knowledge scores or the overall grade point averages of student teachers. Phelps, Schmitz, and Boatright (1986) found their student teacher performance ratings suffered from halo effect and leniency error and found restricted sample variance which they attributed to selective admissions to teacher education programs. More specifically, these researchers noted that their raters of student teaching performance did not differentiate among different instructional skill areas and did not use the lower end of the rating scales. They reported mean ratings ranging from 4.47 to 4.89 on a one to five-point scale.

The purpose of the present study was to determine to what extent selected academic, personal, and affective characteristics might be predictors of a sample of prospective teachers' student teaching performance as rated by the student teachers' university supervisors. More specifically, the present multiple regression study was designed to ascertain the extent that student teachers' performance, as assessed by their university supervisors, could be predicted from the following three sets of measurements: a) high school and college academic performance indices, b) self reported attitudes, anxieties, and concerns about teaching, and c) Myers-Briggs Type Indicator and Rotter's locus of control scores.

Method

The subjects for this study consisted of all students entering the teacher preparation program at Bowling Green State University during the 1985 calendar year and who had completed their student teaching experience by the end of the second semester of the 1987-88 academic year and for whom all possible sets of predictor scores (22) as shown on Table 1 were available. This sample consisted of 87 prospective teachers of whom approximately 60% anticipated teaching in elementary grades and 40% at the secondary level and of whom approximately 80% were females.

These prospective teachers had completed the Myers-Briggs Type Indicator (Myers & McCaulley, 1985) and Rotter's Locus of Control (Rotter, 1966) measures just prior to their student teaching experience. This locus of control measure provides a single externality score; whereas the Myers-Briggs measure provides both a research score for each of four preference scales (extraversion-introversion, sensing-intuitive, thinking-feeling, and judging-perceptive) plus a dichotomous classification for each of these four preference scales. (See Appendix A for a description of these scales).

These neophyte teachers had completed an assurance of their decision to teach scale and a perceived effectiveness as a future teacher scale. The first of these scales consisted of a five-point continuum response from very certain '1' to very doubtful '5' about actually teaching; the second measure consisted of an eight-point continuum response from not effective at all '0' to truly exceptional '7' in fulfilling the functions of a future teacher. Additionally, the university and education cumulative grade point averages prior to student teaching, the high school grade point averages, and the high school graduating ranks were obtained from university records for these individuals.

Upon the completion of their student teaching experience these prospective teachers also completed the Teacher Concerns Questionnaire (George, 1978), The Attitude Toward Teaching as a Career Scale (Merwin & Divesta, 1959), and The Teaching Anxiety Scale (Parsons, 1973). The concerns questionnaire consists of 15 items with five items each comprising the self, task, and impact subscales. The response scale for each item is a continuum from not concerned '1' to extremely concerned '5'. The attitude scale contains 11 items each of which is responded to on a scale from strongly disagree '1' to strongly agree '6' where the higher scores indicate a more positive attitude. The anxiety scale is comprised of 29 items with a response continuum for each item from never '1' to always '5' with higher scores indicating more anxiety toward teaching as a career.

Further, the university supervisors provided a numerical evaluation of the prospective teachers' performance upon the completion of their student teaching experience. This scale for rating student teacher performance consists of six items requiring the university supervisors to rate the effectiveness of each student teacher relative to all student teachers he/she had supervised over the previous five years in the following performance areas (see Appendix B): content presentation, preparation-organization, learning climate, controlling or managing student behavior, professional knowledge and behavior, and fairness-tact-judgment. These six items were responded to on an eight-point scale from lowest '0' to truly exceptional '7' yielding a total possible rating score of 42.

Step-wise multiple regression procedures were used to analyze the data collected. The prospective teachers' four concerns about teaching scores, their four Myers-Briggs preference research scores, their four Myers-Briggs dichotomous classification scores, their anxiety and attitude toward teaching scores, their three grade point averages, their high school rank, their externality locus of control score, their effectiveness as a future teacher and assurance of the decision to teach self-rating scores, and their elementary-secondary major classification comprised the 22 predictor or independent variables (see Table 1) for the regression procedures. The university supervisors' ratings of the effectiveness of the prospective teachers' performance in student teaching were used as the criterion or dependent variable in the multiple regression procedures.

The step-wise analysis procedures first selected the best single predictor of the student teaching performance rating criterion, then selected the best two predictors, then the best three predictors, etc. The p value for selection was set at .15, but only those variables contributing to the prediction at or near the .05 alpha level are reported in this paper.

Results

The Pearson product-moment or point biserial correlation coefficients between the 22 predictor variables and the student teaching performance rating criterion are reported in Table 1. As can be noted from this data, just six of these coefficients differed significantly from zero with alpha set at or below the .05 level: university GPA (.33), education GPA (.28), anxiety about teaching (-.21), self-rating of future effectiveness as a teacher (.21), external locus of control (-.19), and Myers-Briggs judging-perceptive preference classification (-.18). The greatest amount of variance controlled in the student teaching performance scores by a single predictor variable (university GPA, $.33^2$) was approximately 11%. To ascertain how much variance in the dependent variable could be controlled by all the predictive variables, a step-wise multiple regression analysis was completed.

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Insert Table 1 about here
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The results of the step-wise multiple regression procedures are presented on Table 2. The single best predictor of student teaching performance was the university GPA with an R value of .33, followed by the Myers-Briggs sensing-intuition research score bringing the multiple R value to .42, followed by the self-rating of future success as a teacher bringing this multiple R value to .47, followed by the Myers-Briggs sensing-intuition dichotomous classification bringing the multiple R value to .50, and followed by (the last variable selection with an F value of $p < .05$) the Myers-Briggs thinking-feeling dichotomous classification bringing the total multiple R value to .54. Data in Table 2 also reveal that variations in these five variables controlled approximately 29% ($.288=R^2$) of the variation in the student teaching performance ratings. None of the other 17 independent variables either singularly or in concert contributed markedly to the control or determination of additional amounts of variance in the student teaching performance scores.

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Insert Table 2 about here
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Summary and Implications

Six of the 22 predictor variables correlated significantly ($p \leq .05$) with the student teaching performance ratings with absolute values of coefficients ranging from .18 to .33. The step-wise multiple

regression procedures identified a team of five significant predictors of the student teaching performance scores. The multiple correlation coefficient with the five predictor variables was .54, its square was approximately 29%.

The five significant predictors were university GPA (entered in the first step of the process), self-rating of future effectiveness as a teacher (entered at the third step), and three of the eight Myers-Briggs scores or classifications comprised the remaining predictors.

It would appear from these findings that: 1) A reasonably effective set of predictors of student teaching performance has been identified; this set accounts for approximately 30% of the variance in the university supervisors' ratings of the performance of their student teachers. In addition, the measurement of these predictors other than cumulative university GPA required less than 30 minutes of testing time. A multiple correlation coefficient of .54 is similar in magnitude to that of high school grades or rank plus ACT/SAT scores used on many university campuses for predicting college freshmen GPA. 2) The student teaching performance scale used in the present study may have overcome some of the measurement limitations associated with the ratings of student teaching performance noted earlier in this paper (Dobry, Murphy, & Schmidt, 1985; Phelps, Schmitz, & Boatright, 1986). Our student teaching rating scores ranged from 13 to 42. 3) Based upon this single sample of student teachers, it appears that prospective teachers with a combination of high university grade point averages, who perceive themselves as likely to become highly successful future teachers, who have a Myers-Briggs classification preference for intuition in contrast to sensing (a preference for looking for possibilities and relationships rather than work with known facts), and who have a Myers-Briggs classification preference for feeling rather than thinking (a preference for making judgments more on personal values than on impersonal analysis and logic) are more likely to have their student teaching performance rated higher by their university supervisors than are their fellow student teachers with opposite preferences, lower GPA's, and lower expectations of their future success as teachers. 4) Additionally, it appears that those prospective teachers who are more anxious about teaching, who feel that they have less control over their environment (external locus of control), and who have a Myers-Briggs classification of perceptive rather than judging attitude (like a spontaneous way of life rather than a planned, orderly way of life) are more likely than their fellow prospective teachers to have their student teaching performance rated lower by their university supervisors.

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Table 1

Pearson Product-Moment or Point Biserial Correlation Coefficients Between Selected Predictor Variables and the Student Teaching Performance Rating Criterion Measure

Variable	r	p	Variable	r	p
University GPA	.33	.001	High School Rank	.09	.31
Education GPA	.29	.001	Sensing-Intuitive Score	-.09	.29
Anxiety about Teaching	-.21	.01	Thinking-Feeling Classification*	-.08	.32
Effectiveness Future Teacher	.21	.02	Attitude Toward Teaching	.08	.35
Locus of Control (externality)	-.19	.05	Impact Concerns	-.07	.36
Judging-Perceptive Classification*	-.18	.05	Extraversion-Introversion Classification*	-.06	.47
Assurance about Teaching	.14	.10	Extraversion-Introversion Score	-.05	.53
Judging-Perceptive Score	-.14	.10	High School GPA	.04	.63
Total Concerns	-.11	.18	Sensing-Intuitive Classification*	.04	.59
Task Concerns	-.10	.21	Thinking-Feeling Score	-.04	.65
Self Concerns	-.10	.24	Elementary Major	-.02	.83

* The Myers-Briggs classifications were entered with the first classification label as '1', second classification label as '2'; therefore the minus coefficient for Judging-Perceptive means that those subjects classified as perceptive received lower student teaching performance ratings than those who were classified as judging.

Table 2

Step-Wise Multiple Correlation R Values Between Predictors and Student Teaching Performance Rating Criterion

Step*	Predictor	R	R^2	F	p
1	University GPA	.33	.109	10.52	.002
2	Sensing-Intuition Score	.42	.178	7.08	.009
3	Effectiveness Future Teacher	.47	.219	4.50	.037
4	Sensing-Intuition Classification	.50	.253	3.73	.057
5	Thinking-Feeling Classification	.54	.288	4.02	.048

* Only variables with p-values approximately equal to .05 were included. None of the other 17 predictor variables added significantly to the prediction process.

APPENDIX

A. Scale for Rating Student Teaching Performance

B. Report Form for Myers-Briggs Type Indicator

OERS Research Project
BCSU Supervisor Rating of Student Teacher

Name of
Student Teacher _____ Date _____

Social Security # _____

Directions: Please rate this student teacher's performance relative to all other student teachers you have supervised say over the past five years on each of the following six categories by circling the single number best reflecting his/her relative rank. The rating numbers are defined as follows:

7 = TRULY EXCEPTIONAL, within top 5% of students I have supervised.
6 = OUTSTANDING, next 5%, approximately 98% of my present and past student teachers would certainly have ratings below this.
5 = UNUSUALLY GOOD, not at the very top but certainly in top 1/4 of all student teachers have supervised.
4 = A LITTLE ABOVE MY AVERAGE student teacher, somewhat above the middle in terms of performance; about 40% of my past students have done better than this individual, 60% have done worse.
3 = A LITTLE BELOW MY AVERAGE student teacher, about 60% of my past students have done better than this individual, 40% worse.
2 = BELOW AVERAGE, certainly in the bottom 1/3 of my past student teachers, but I have had worse!
1 = NEAR THE BOTTOM, probably in the bottom 18-20% of students I have supervised. (But could still be of sufficient quality (or promise) to earn a teaching certificate).
0 = THE BOTTOM!--Poorest student I have ever had! I don't see how he/she ever got to the student teaching stage.

The above described ratings are illustrated by the following line schema.

COMPARED TO ALL STUDENT TEACHERS I HAVE SUPERVISED OVER THE LAST FIVE YEARS, THIS INDIVIDUAL RANKS:

0	1	2	3	4	5	6	7
The Bottom!	Near the Bottom	Below Average, In Bottom 1/3	A Little Below My Average Student Teacher	A Little Above My Average Student Teacher	Unusually Good, In Top 1/4	Outstanding, Top 15%	Truly Exceptional, Top 5%

(Please circle your ratings.)

Performance Category	This Student's Performance Rating, Based on Average of My Past Student Teachers, is: The Bottom!							Truly Exceptional
1. Presents Content Effectively: Lessons clear, focused, well organized, effective examples, appropriate pace, assignments clear, communicates well, etc.	0	1	2	3	4	5	6	7
2. Plans, Prepares, and Organizes Activities: Well prepared learning activities, effective use of time, monitors activities, all students participate, students on task, etc.	0	1	2	3	4	5	6	7
3. Maintains Positive Learning Climate: Sensitive to student needs, friendly and accepting, good interaction with students, displays and accepts humor, high but realistic expectations, positive leadership, etc.	0	1	2	3	4	5	6	7
4. Maintains Appropriate Student Behavior: Clear expectation regarding classroom conduct, promotes student self control, uses praise and consequences more than punishment, aware of and addresses undesirable behavior, shows consistency in applying rules, etc.	0	1	2	3	4	5	6	7
5. Displays Professional Knowledge & Behavior: Knows subject matter, cooperative attitude, responds positively to supervision, models professional behavior, growing professionally, etc.	0	1	2	3	4	5	6	7
6. Shows Fairness, Tact, Compassion, and Good Judgement in dealing with pupils, parents, supervisors, other teachers, etc.	0	1	2	3	4	5	6	7

Pertinent Evaluative Comments:

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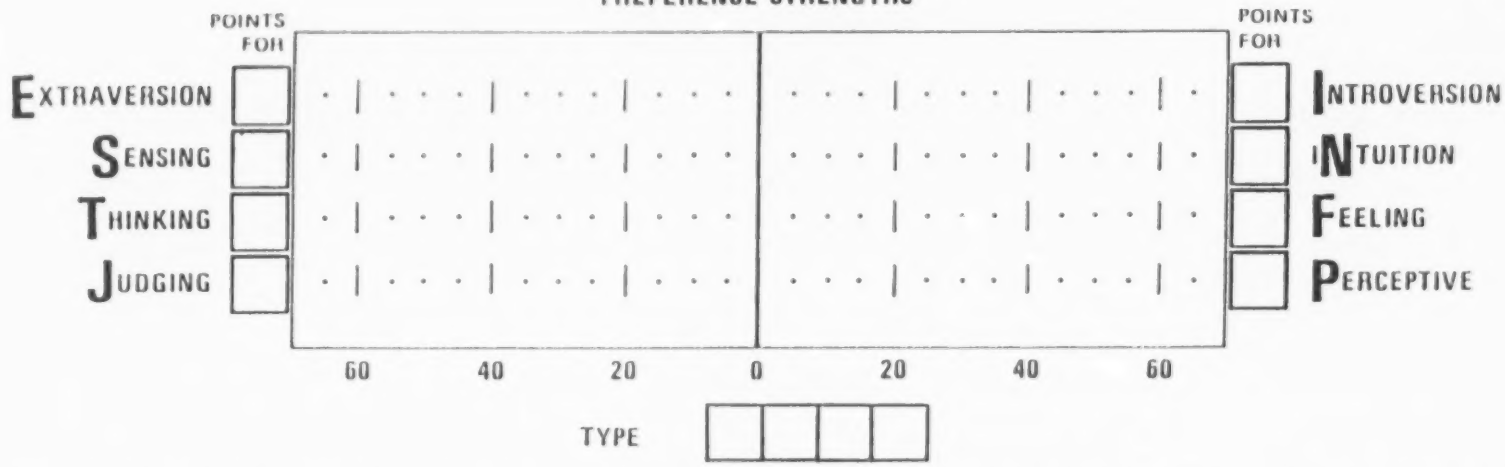
Please send completed form to Fred Pigge, 318 Ed Bldg, BCSU, within 10 days (if possible) of receipt. Thank you.

Report Form for Myers-Briggs Type Indicator*

Name _____ Sex: M☐ F☐ Age _____ Other _____ Date _____

PREFERENCE STRENGTHS



Indicator questions deal with the way you like to use your perception and judgment, that is, the way you like to look at things and the way you like to go about deciding things. The answers given reflect four separate preferences called EI, SN, TF and JP. The profile above shows your score on each preference. The four letters of your "type" tell how you came out on all four preferences. What each preference means is shown below.

E An E for extraversion probably means you relate more easily to the outer world of people and things than to the inner world of ideas.

S An S for sensing probably means you would rather work with known facts than look for possibilities and relationships.

T A T for thinking probably means you base your judgments more on impersonal analysis and logic than on personal values.

J A J for the judging attitude probably means you like a planned, decided, orderly way of life better than a flexible, spontaneous way.

I An I for introversion probably means you relate more easily to the inner world of ideas than to the outer world of people and things.

N An N for intuition probably means you would rather look for possibilities and relationships than work with known facts.

F An F for feeling probably means you base your judgments more on personal values than on impersonal analysis and logic.

P A P for the perceptive attitude probably means you like a flexible, spontaneous way of life better than a planned, decided, orderly way.

Each combination of preferences tends to be characterized by its own set of interests, values and skills. On the back of this page are very brief descriptions of each type. Find the one matching your four letters and see whether or not it fits you. If it doesn't, try to find one that does. Whatever your preferences, of course, you may still use some behaviors characteristic of contrasting preferences, but not with equal liking or skill. This tendency may be greater if preference strength on a scale is low (under 15). For a more complete discussion of the types and their vocational and personal implications, see *Introduction to Type* by Isabel Briggs Myers, or consult your counselor.

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